

(No Model.)

E. WESTON.

PROCESS OF MANUFACTURING CARBON CONDUCTORS.

No. 263,830.

Patented Sept. 5, 1882.

Fig. 1.

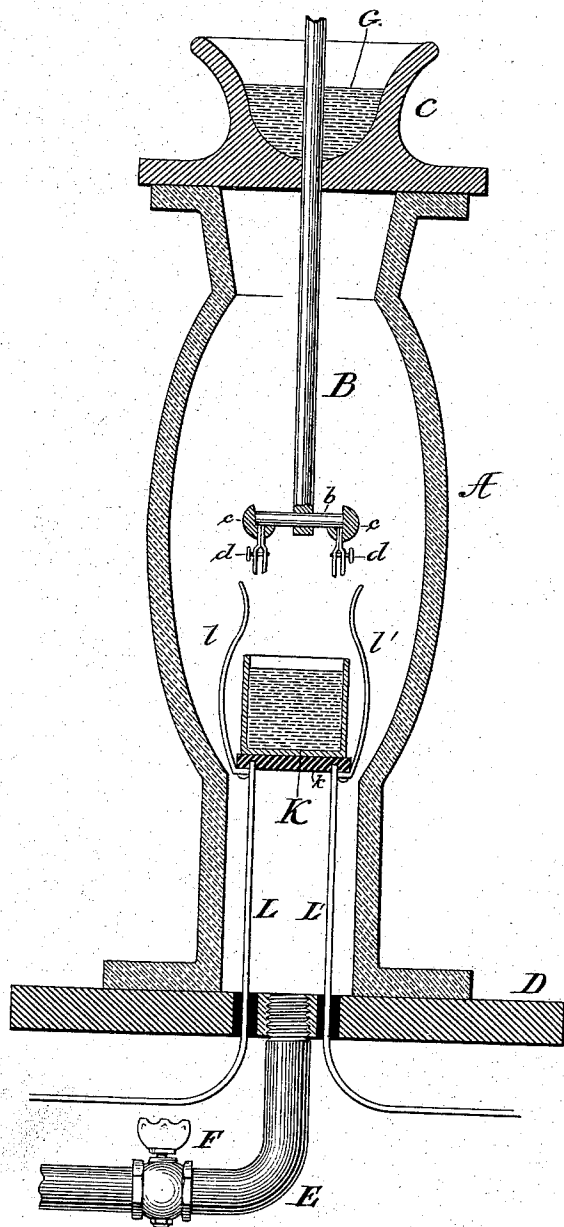


Fig. 2.

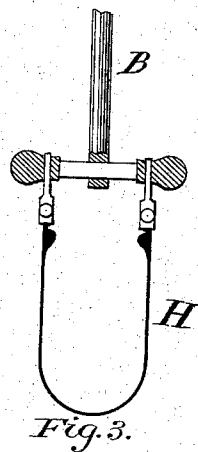
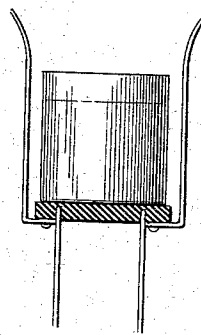


Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

PROCESS OF MANUFACTURING CARBON CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 263,830, dated September 5, 1882.

Application filed September 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WESTON, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Process of Manufacturing Carbon Conductors for Incandescent Lamps, of which the following is a specification.

The conductors for electric incandescent lamps, as is well known, require to be made with a very delicate stem and enlarged clamping ends, the purpose of which is to protect the metal clamps from oxidation and fusion by lowering the resistance, and consequently the temperature, at the joints.

In the manufacture of carbons for the above-named purposes from fibrous or other carbonizable substances it is usual to cut out blanks from the raw material having the same general shape as that desired for the finished conductor, and then to carbonize these by exposing them to a high heat while packed in a closed retort or muffle. The ends of carbons thus prepared are apt to exhibit qualities of electrical resistance and conductivity differing somewhat from those observed in the main stems, thus making it desirable to treat the ends so that they will be in all respects similar to the remaining portions. Again, it is often desirable to use straight thread-like strips of carbonizable material for the blanks, in which case the enlarged ends must be formed entire.

My present invention consists in a method of and apparatus for electrically treating the ends of the carbons above mentioned with a view to thoroughly carbonizing, solidifying, and improving the conductivity of the ends in cases where the enlargements are formed previously to carbonization, and to build up the ends of those carbons which are formed in straight thread-like strips, the invention being equally applicable to both purposes.

In the accompanying drawings, Figure 1 is a sectional view of the apparatus complete; Fig. 2, a part sectional view of the devices for holding the carbon, and Fig. 3 a view of a device for protecting such portions of the conductors as it is not desired to treat.

The letter A designates a receiver, of glass, open at both ends, and having the central portion somewhat enlarged.

C is a cap of metal, polished on the bottom to closely fit the ground rim of the receiver A.

D is a bed-plate of smooth metal, upon which the lower ground rim of receiver A rests. Through D passes a pipe, E, by means of which the air in the interior of the receiver may be withdrawn, and through which, by a cock, F, a hydrocarbon vapor is introduced on the withdrawal of the air.

B is a rod of metal, sliding tightly through cap C, which is constructed to form a mercury or other liquid seal, G. The rod B carries a cross-bar, *b*, to which are attached metal ends *c* and clamps *d*.

K is a cup of mercury, raised on an insulating-plate, *k*, supported within the receiver by the conductors L L, which are arranged to convey the current to two strips, *l l*, bent over the top of the cup in such positions that the metallic ends *c c* of the cross-bar *b* will come in contact therewith when the rod B is lowered.

In using the above apparatus a conductor of carbon formed in any of the known methods is attached by the ends to the clamps *d*. The receiver is then placed over the tube E and closed by the cap C. By means of the tube E, as above stated, a carbon-bearing vapor is introduced within the receiver and the rod B forced down until the ends *c* make contact with springs *l l*. The carbon H will thus be brought below the level of the mercury in cup K, and only so much of it left out of the mercury as it may be desired to treat. When the proper adjustment is attained the circuit is completed to conductors L L, so that those portions of the carbon which remain above the surface of the mercury will be heated and receive a deposit of carbon from the surrounding vapors. If the carbon under treatment has originally its ends widened or enlarged, the deposition is continued for only a short space of time; but with straight carbons, where the enlargements have to be formed entire, the treatment will of course be continued until the desired amount of carbon is deposited.

The above-described apparatus forms the most convenient means of carrying out my invention of which I am at present aware. I would state, however, that I do not restrict myself to the employment of the apparatus specified, as I may vary the same in many

particulars. For instance, if an oil be used instead of the gas, the same precautions for the exclusion of air need not be taken. In this case the oil is poured into the cup K and rests on the surface of the mercury, and that portion of the conducting-strip that extends above the level of the mercury will receive a deposit of carbon from the oil when heated by the current. It will be seen from the above that the portion of the conductor below the mercury will not be affected by the current, as a short circuit is formed through the mercury between the two sides.

I am aware that various methods of enlarging and treating the ends of carbon conductors of the kind described have been practiced heretofore; but in no instance of which I am aware has provision been made for excluding the gas or liquid from those portions of the conductor which it is not desired to affect. This feature of my invention, it will be observed, is attended with the most important results, as it is well known that in a receiver of the kind employed for this purpose the carbon will be deposited from the gas, not alone on the heated surface of the conductors, but on all the unprotected portions both of the conductor and of the apparatus used in holding it.

Having therefore described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The improvement in the method of manufacturing carbon conductors for incandescent lamps herein described, consisting in electrically heating in a hydrocarbon gas or liquid those portions only of the said conductors which it is desired to treat, and excluding the gas or liquid from the remaining portions, substantially as described.

2. The combination, with a jar or receiver, of means for introducing hydrocarbon gas or vapor therein, means for passing a current through a carbon conductor within the receiver, and means for protecting from the effects of the current and the gas such portions of the said conductor as may be desired, substantially as set forth.

In testimony whereof I have hereunto set my hand this 3d day of September, 1881.

EDWARD WESTON.

Witnesses:

PARKER W. PAGE,
GEO. R. BYINGTON.